REMARKS

This paper is submitted in reply to the Office Action dated May 2, 2005, within the three-month period for response. Reconsideration and allowance of all pending claims are respectfully requested.

In the subject Office Action, the drawings were objected to for including a reference character not mentioned in the description, and the specification was objected to based on informalities. In addition, claim 19 was rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter; claims 1, 10, 20 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,535,990 to Iterum et al. in view of Stevens (TCP/IP Illustrated, Volume 1: The Protocols); and claims 2-9, 11-17 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Iterum et al. in view of Stevens and further in view of Mano (Computer System Architecture).

Applicants respectfully traverse the Examiner's rejections to the extent that they are maintained.

First turning to the Examiner's objection of the drawings, the Examiner asserts that item 96 of Fig. 6 is not mentioned in the description. Applicants respectfully direct the Examiner's attention to page 20, lines 27-28 for the reference. As such, withdrawal of the objection to the drawings is therefore respectfully requested.

Next with respect to the objection to the specification, the Examiner will note that Applicants have amended the specification to correct the typographical error as required by the Examiner, changing the word "bock" to "block" on page 13, line 23. Withdrawal of the objection to the specification is therefore respectfully requested.

Next with respect to the rejection of claim 19 as being directed to non-statutory subject matter, Applicants have amended this claim to recite a tangible computer readable medium, consistent with the Examiner's suggestions. Reconsideration and withdrawal of the §101 rejection are therefore respectfully requested.

Now turning to the art-based rejections, and more specifically to the rejection of independent claim 1, this claim generally recites a method of communicating between nodes in a clustered computer system. The method includes communicating a port identifier from a first node to a second node coupled to the first node over a point-to-point network, wherein the first node includes a plurality of network ports and a plurality of communication registers, wherein each communication register is dedicated to an associated network port among the plurality of network ports and is configured to store data received over such associated network port, and wherein the port identifier identifies a network port among the plurality of network ports to which the second node is coupled to the first node. The method also includes communicating data from the second node to the first node by initiating a write operation on the first node using the second node to store the data in the communication register associated with the network port identified by the port identifier.

In rejecting claim 1, the Examiner relies on the combination of Iterum and Stevens. Iterum is relied upon for disclosing interconnected nodes in a clustered computer system that are capable of communicating with one another. However, the Examiner admits that Iterum fails to disclose communicating port identifiers and initiating a write operation to transfer data to a specific port.

The Examiner does not address, however, the additional language in claim 1, namely the concepts of a plurality of communication registers that are dedicated to an associated network port, and initiating a write operation that stores data in the communication register associated with the network port identified by a port identifier. Indeed, Applicants can find no mention of communication registers in the entirety of Iterum, and the only mention of the term "register" is in connection with a component "registering" with a path manager (i.e., a registration process). Iterum therefore also fails to disclose these additional features of claim 1.

To address the shortcomings of Iterum, the Examiner relies on Stevens for allegedly disclosing TCP/IP, and more relevantly, the concepts of TCP/IP ports and transmitting port numbers between nodes. Of note, however, the Examiner does not address, nor does Stevens appear to disclose, the concept of communication registers that are dedicated to associated network ports, or of initiating write operations to store data in communication registers associated with network ports identified by specific port identifiers. For this reason alone, Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness.

Additionally, with respect to TCP/IP ports and transmitting port numbers, it appears the Examiner is misconstruing Applicants usage of the term "network port". Claim 1 focuses on a network port that is utilized to directly communicate information between a node and another node that is directly coupled thereto over a point-to-point interconnect. Put another way, each network port is a physical, hardware-based port that is capable of being coupled to one end of a point-to-point interconnect to enable data to be communicated over the point-to-point interconnect to another node that is coupled at the opposite end of the interconnect. By doing so, the network port is effectively associated with a single, other node in the clustered computer system.

To clarify this characterization of a network port in claim 1, Applicants have amended the claim to additionally recite that each network port is "configured to directly couple to an adjacent node in the clustered computer system over a point-to-point interconnect in the point-to-point network." Support for this amendment may be found, for example, at page 8, lines 20-29 of the Application as filed.

Stevens, on the other hand, discusses TCP/IP ports, which are software-based, or virtual ports, that are more appropriately considered as being associated with particular services in a network, rather than particular nodes or interconnects. Pages 12 and 13 of Stevens reinforce this view, noting that servers provide particular services on particular

port numbers, and that "[a] client usually doesn't care what port number it uses at its end." Stevens also discusses ports as being "ephemeral ports (i.e., short lived)."

As such, Stevens discloses the communication of a port number to associate a data communication with a particular service supported by a server. Claim 1, on the other hand, recites that the claimed network ports are configured to directly couple to adjacent nodes in a clustered computer system over point-to-point interconnects. The ports disclosed in Stevens simply do not meet this recitation in claim 1, and as such, the Examiner has failed to establish that Stevens discloses the ports recited in claim 1.

Applicants also submit that neither Iterum nor Stevens, alone or in combination, suggests the specific method recited in claim 1. As discussed, for example, at pages 4 and 7 of the Application, the claimed method provides an ability for nodes in a clustered computer system to communicate via a primitive communication mechanism that does not require individual nodes to have prior knowledge of names or addresses of other nodes in the system. By associating specific network ports with specific communication registers, a node is able to provide any nodes connected to any of its ports of identifying information to permit those other nodes to write data to particular communication registers, and thereby enable a node to decode the source of communications from other nodes.

Both Iterum and Stevens presuppose that network-wide addresses have been established for each node in a system. Moreover, both references fail to appreciate the difficulties in establishing communications when such addresses have not been established. As such, neither reference appreciates the problem that the configuration of claim 1 is capable of addressing.

Coupled with the fact that neither reference discloses or suggests the association between network ports and communication registers as recited in claim 1, Applicants submit that claim 1 is non-obvious over Iterum and Stevens. Reconsideration and

allowance of claim 1, as well as of claims 2-9 which depend therefrom, are therefore respectfully requested.

Next with respect to the rejection of independent claim 10, this claim generally recites a circuit arrangement which includes a plurality of network ports, each configured to couple a first node from a clustered computer system to another node in the clustered computer system over a point-to-point network; a plurality of communication registers, each dedicated to an associated network port among the plurality of network ports and configured to store data received through such associated network port; and a control circuit coupled to the plurality of communication registers and configured to automatically notify the first node in response to storage of data in any of the plurality of communication registers.

As discussed above in connection with claim 1, neither Iterum nor Stevens discloses or suggests a plurality of network ports, each configured to couple a first node from a clustered computer system to another node in the clustered computer system over a point-to-point network. With regard to Stevens in particular, the reference is directed to TCP/IP ports, which are associated with services, rather than with particular nodes.

Nor does either reference disclose or suggest a plurality of communication registers, each dedicated to an associated network port among the plurality of network ports and configured to store data received through such associated network port. Indeed, in rejecting claim 10, the Examiner references the rejection of claim 1, which as Applicants noted above, does not even address the concept of communication registers that are dedicated to associated network ports.

Also of note, claim 10 recites a control circuit "configured to automatically notify the first node in response to storage of data in any of the plurality of communication registers." The Examiner has provided no support whatsoever for an assertion that Iterum or Stevens discloses or suggests such a concept. Indeed, neither reference even discloses communication registers, so it would be unreasonable to assert that either reference

suggests automatically notifying a node in response to storage of data in any of a plurality of registers.

Applicants therefore respectfully submit that independent claim 10 is novel and non-obvious over the prior art of record. Reconsideration and allowance of independent claim 10, as well as of claims 11-19 which depend therefrom, are therefore respectfully requested.

Next, with respect to independent claims 20 and 22, each of these claims, similar to claim 10, recites the concept of automatically notifying a node in response to the storage of data in any of a plurality of communication registers, and where each communication register is dedicated to an associated network port, and where each network port is used to couple a node to another node over a point-to-point network. As discussed above in connection with claim 10, none of these features are disclosed or suggested by either of Iterum or Stevens. Indeed, the Examiner again refers back to the rejection of claim 1 in association with the rejections of these claims, ignoring the specific claim language that differs from that recited in claim 1.

Applicants therefore respectfully submit that independent claims 20 and 22 are novel and non-obvious over the prior art of record. Reconsideration and allowance of independent claims 20 and 22, as well as of claim 21 which depends therefrom, are therefore respectfully requested.

As a final matter, Applicants traverse the Examiner's rejections of the dependent claims based upon their dependency upon the aforementioned independent claims. However, Applicants also wish to point out that the Examiner's addition of Mano to the rejections of these claims is fraught with hindsight based analysis. Mano is cited to disclose a number of computer architectures and techniques; however, the Examiner fails to establish any motivation for applying those techniques to address the specific features recited in a number of the claims. As such, Applicants submit that Mano adds little to the Examiner's rejections.

In summary, Applicants respectfully submit that all pending claims are novel and non-obvious over the prior art of record. Reconsideration and allowance of all pending claims are therefore respectfully requested. If the Examiner has any questions regarding the foregoing, or which might otherwise further this case onto allowance, the Examiner may contact the undersigned at (513) 241-2324. Moreover, if any other charges or credits are necessary to complete this communication, please apply them to Deposit Account 23-3000.

Respectfully submitted,

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Date

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